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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/749,541	12/28/2000	Katsuhiko Maeda	201377US3	5976
22850	7590	11/12/2003	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			PHAM, HAI CHI	
			ART UNIT	PAPER NUMBER
			2861	

DATE MAILED: 11/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/749,541

Applicant(s)

MAEDA, KATSUHIKO

Examiner

Hai C Pham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-37,39,41,42,45-59,61-79,81-83,85,86,90,91,95,96 and 98-100 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-35,39,41,42,45-59,63-65,67-77,79,81-83,85,86,90,91,95,96 and 100 is/are allowed.
- 6) ☒ Claim(s) 36,37,61,62,66,78,98 and 99 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The amendment to the claims filed on 08/27/03 incorrectly presents claim 61 in its original version while claim 61 has been amended to become an independent claim. See also section "Claim Objections" below.
2. It is also noted that Applicant correctly lists the actual pending claims in the application, which includes claim 98, in the Remark section on page 37, lines 3-4. However, in his argument on page 38, Applicant wrongly refers to claim 98 as being cancelled. However, for the record, the actual pending claims in the application are those listed on page 37.

Claim Objections

3. The following claims are objected to because of the following informalities:

Claim 61:

- Claim 61 is objected for being improperly presented under its original version (a dependent claim) while it has been amended on 12/02/02 to become an independent claim. Claim 61 will be examined based on the amendment presented in the previous response until the Applicant says otherwise.

Claim 66:

- Line 17, "optical unit" should read --optical means-- to preserve the consistency of the claimed terminology, e.g., "optical means" being recited at line 8;

Claim 67:

- Line 17, "optical unit" should read --optical means--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 36-37, 61-62, 66, 78, 98-99 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Acknowledged Prior Art (hereinafter AAPA) in view of Kanai et al. (U.S. 5,450,211) and Nishimura et al. (JP 8-62522).

With regard to claims 36-37, 66, 78, AAPA discloses that a plastic lens used as a scanning lens in an image forming apparatus changes its shape and refractive index responsive to a change in the ambient temperature, that the temperature-induced change also introduces an error of magnification in the main scanning direction, resulting in a low quality image, and that the correction of the magnification error of the light beam in the main scanning direction is known to change the prescribed write clock frequency and the prescribed rotation number to prescribed number according to the change of the temperature.

However, AAPA does not explicitly teach the temperature detecting device being formed in the scanning lens for detecting the temperature of the scanning lens such that

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the correction of the magnification error would directly made based on the detected temperature, the prescribe reference table, and the visualizing member.

Regardless, Kanai et al. discloses an image forming apparatus and method in which the magnification error in the main scanning direction is corrected by using a temperature sensor (28) for sensing the temperature around the f- θ lenses (16 and 17) (col. 10, lines 22-68), and the correction being made by changing the write frequency of the laser diode (via frequency divider). Kanai et al. also discloses a developing unit (33) for visualizing an image formed on the image carrier, and the reference table being provided by the ROM (103) where the changes of the temperature and correction data are stored.

Furthermore, it is also known in the art that in order to obtain accurate measurement of the temperature, the sensor should be made as close as possible to the target. Nishimura et al., for example, discloses a laser scanner provided with a temperature sensor (13) located near the plastic scanning lens (5) for measuring the temperature of the scanning lens so as to adjust the position of the image point of the scanning lens. Nishimura et al. further suggests providing the temperature sensor inside the scanning lens to obtain accurate temperature measurement (see Abstract).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to include the temperature sensor for detecting the temperature of the scanning lens, the visualizing device and the reference table as taught by Kanai et al. as well as to set the temperature sensor as close to the scanning lens as possible as taught by Nishimura et al. in the device of AAPA. The motivation for

doing so would have been to provide accurate measurement of the temperature of the scanning lens so as to successfully suppress the magnification error of the light beam in the main scanning direction.

With regard to claims 61-62, 98-99, AAPA discloses a conventional image forming apparatus having a single or a plurality of light beams, including a magnification correcting device for correcting the magnification error by changing the prescribed write clock frequency and the prescribed rotation number to prescribed levels based on a result of comparison between the time difference signal and the reference time difference signal by a comparing device, and the time difference being determined without lowering a light beam deflection speed if the image formation is in progress (there is no change of the rotational speed of the polygon mirror during the image forming operation as well as during the time difference determination).

However, AAPA fails to teach the time difference being compared with a first reference time to recognize the magnification error, the magnification error correction being performed during an interval of sheets fed to the image carrier, and the visualizing device.

However, Kanai et al. discloses the magnification error correction based on the determination of the time difference as detected by the photosensors (21 and 22), and the correction of the magnification being made possible by a data reference method where data of the standard time is stored in the ROM (103). Kanai et al. also discloses a developing unit (33) for visualizing an image formed on the image carrier. Kanai et al.

further teaches the magnification error correction being performed in the interdocument period (before the start of a new printing page).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the reference table storing the previously measured data as taught by Kanai et al. The motivation for doing so would have been to provide a reliable, accurate, and consistent correction of the magnification error made possible by the use of the reference table.

Allowable Subject Matter

6. Claims 15-35, 39, 41-42, 45-59, 63-65, 67-77, 79, 81-83, 85-86, 90-91, 95-96, 100 are allowed.

Response to Arguments

7. Applicant's arguments with respect to claims have been considered but are moot in view of the new grounds of rejection presented in this Office action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C Pham whose telephone number is (703) 308-1281. The examiner can normally be reached on T-F (8:30-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin R. Fuller can be reached on (703) 308-0079. fax phone numbers

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for the organization where this application or proceeding is assigned are (703) 308-7722, (703) 308-7724, (703) 308-7382, (703) 305-3431, (703) 305-3432.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



HAI PHAM
PRIMARY EXAMINER

November 7, 2003